



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA

February 27, 2017

George ("Pat") Brooks  
US Department of the Navy  
33000 Nixie Way, Bldg 50  
San Diego, CA 92147

Dear Pat:

Thank you for your continued collaboration with respect to developing the Radiological Data Evaluation Plan. As you requested, as input into Phase 2 for soil, attached is a consolidated list of categories for Phase 2 further research and potential sampling. EPA has already shared most of these, e.g., the October 28, 2016, EPA recommendations list (updated December 5, 2016), in comments on Navy draft documents or in discussions through phone calls or emails. For your convenience, we have consolidated this list and clustered similar items. For some of the cases (e.g. Building 523), we have already found evidence that reduces our level of concern (e.g. subsequent characterization work by consultants other than Tetra Tech EC, Inc.). For other cases (e.g. under Building 351A), the Navy has already agreed to do sampling. In all of the cases, however, written documentation, for the record, of evidence for level of concern will help ensure a well-informed discussion among agencies and transparency to the public.

Here is a summary of categories for potential sampling:

1. Sites with specific worker allegations
2. Anomalous areas confirmed with statistical and logic tests
3. Other (e.g., areas of relatively higher concern prior to remediation, future land use, parcel by parcel coverage)

The same locations may appear in more than one category, which would be a potential indicator of higher priority for further research and/or sampling. Attachment 1 contains details about each category, and Attachment 2 contains EPA's previous recommendations about data prior to 2006. We look forward to continuing to work together to define the scope of further investigation. We hope this compilation facilitates a thorough and well-coordinated process.

EPA looks forward to continuing to work together on this priority issue. Please contact me or Lily Lee on my staff if you would like to discuss any of these comments. You can reach me at 415-972-3005 or [chesnutt.john@epa.gov](mailto:chesnutt.john@epa.gov) or Lily at 415-947-4187 at [lee.lily@epa.gov](mailto:lee.lily@epa.gov).

Sincerely,



John Chesnutt, Manager  
Pacific Islands and Federal Facilities Section  
Superfund Division

#### Attachments

cc. Nina Bacey, State Department of Toxic Substances Control  
Tina Low, Regional Water Quality Control Board  
Amy Brownell, San Francisco Department of Public Health

Note: Redacted version sent to non-Federal agencies to protect enforcement confidential information

**Attachment 1: Consolidated list of EPA Recommendations for Categories for Phase 2 further investigation and potential soil sampling**

*(Note: italicized items will be redacted in version sent to non-Federal addressees)*

**1. Sites with specific worker allegations**

1.1. Parcels earlier in transfer schedule (e.g., Parcels B-1, B-2, C, D-1, D-2, G, UC-1, UC-2, UC-3)

*1.1.1. Parcel UC-1, Fischer & Spear area of previous reference area scanning*

*1.1.2. Parcel G, Building 351A crawlspace underneath*

*1.1.3. Parcel D-1, Building 523 – subsequent work by Gilbane & Shaw*

1.2. Parcels later in transfer schedule

*1.2.1. Parcel E, IR-02 radium dial disposal area - excavated to almost 10 feet below grade surface, future recreational use, small radiological devices found on the shoreline could have eroded out of IR-02.*

1.3. Unspecified locations, so will need to rely on other approaches, e.g. sampling in areas of relatively higher concern prior to remediation

*1.3.1. Discarded unanalyzed samples into open trenches*

*1.3.2. Radiation Screening Yards – Material excavated from trenches and potentially used as backfill*

*1.3.3. Fencing – Location unknown. Fencing may not still be available for testing. Any potential contamination may have washed off long ago.*

1.4. Suspicious activities

1.4.1. Work done by Tetra Tech EC former employees

*1.4.1.1. Associated with prior confirmed falsification*

*1.4.1.2. Specific allegations against them*

1.4.2. Missing information from Tetra Tech (e.g. log books or location data)

**2. Anomalous areas confirmed with statistical and logic tests**

2.1. Statistical tests, including comparisons between parent and progeny radionuclides within a decay chain.

2.2. Other data review, such as previous comparisons of Potassium 40 (K-40) concentrations

### 3. Other

#### 3.1. Areas of relatively higher concern prior to remediation

3.1.1. Prior Tetra Tech EC Data showed values above health-based standards. As one example, EPA would have relatively greater concern in areas where concentrations have been measured at levels above  $10^{-4}$  risk, according to the latest version of the EPA Radiological Preliminary Remediation Goal (PRG) Calculator. Concern would be higher in shallow locations (e.g. less than 2 feet below grade surface). EPA provided a draft of soil concentrations associated with this risk level using the EPA PRG Calculator version as of February, 2017.

3.1.2. Prior Tetra Tech EC Data showed values below  $10^{-4}$  risk and above the Remedial Goals in the Records of Decision.

3.1.3. Note: Data from other independent sources can help cross-check

3.1.3.1. Navy data from consultants other than Tetra Tech EC, Inc.

3.1.3.2. CDPH independent sample collection and analysis

3.1.3.3. EPA independent scans

3.2. Known areas of previous releases, e.g. from the Historical Radiological Assessment (2004) and subsequent findings.

#### 3.2.1. Parcels earlier in the transfer schedule

3.2.1.1. Parcel B, Survey Unit 51A (near Building 146 and Outfall 1)  
“stubborn” trenches with multiple excavations before closure, high volume of samples

3.2.1.2. Parcel B Bldg 103, Radium 226 in soil underneath was detected at 6.18 pCi/g

3.2.1.3. Southeast of Parcel G, former Naval Radiation Defense Laboratory (NRDL), e.g. Buildings 351, 354, 351A, 354, and 366 (e.g. liquid contamination related to disposal tank), and “peanut” shaped spill of liquid Cs-137 and associated releases related to a storage tank

3.2.1.4. Areas of Parcels B, C, and G near release criteria because of multiple excavations due to changes in instrument sensitivity and regulatory requirements

3.2.2. Parcels later in the transfer schedule (e.g. Parcels E, E-2)

3.2.2.1. Parcel E – future use recreational or residential

3.2.2.1.1. 707 Triangle area - Sediments out of the storm drain had highest concentrations of Ra-226 detected site-wide. Elevated Cs-137 and possibly Sr-90 was also found.

3.2.2.1.2. IR-02 - Radium commodities were found on the shore, which raises a question regarding accuracy of data on the shoreline side of excavation.

3.2.2.1.3. Parcel E 500 Series buildings – Drain line area and Pu-239 found at entrance to the line.

3.2.2.2. Parcel E-2 – landfill, future use recreational (Please see Attachment 2 regarding data from before 2006)

3.2.2.2.1. Metal Debris Reef

3.2.2.2.2. PCB disposal area

3.2.2.2.3. Metal slag area – Ra-226 in material from the 707 area

3.2. Future land use – Areas with more sensitive land uses should be higher priority

3.3. Parcel by parcel coverage – If sizable areas within each parcel where Tetra Tech EC, Inc., conducted work are not identified for resampling considering all the above categories, then it may be prudent, due to the uncertainty in the extent of potential falsification, to consider additional random resampling be conducted throughout those portions of each parcel prior to property transfer.

## Attachment 2

### EPA recommendations about data prior to 2006

**From:** LEE, LILY

**Sent:** Wednesday, January 4, 2017 6:42 PM

**To:** 'derek.j.robinson1@navy.mil' <derek.j.robinson1@navy.mil>; Brooks, George P CIV <george.brooks@navy.mil>

**Cc:** 'Bacey, Juanita@DTSC' <Juanita.Bacey@dtsc.ca.gov>; Chesnutt, John <Chesnutt.John@epa.gov>; Karla Brasaemle (kbrasaemle@techlawinc.com) <kbrasaemle@techlawinc.com>

**Subject:** Updated recommendation to Navy re evaluation of data before 2006

Dear Derek,

Thank you for talking with me and Karla in December about evaluation of Tetra Tech data prior to 2006. Here are our recommendations, as we had discussed:

These excavations (IR-02, Metal Slag, and Metal Debris Reef) started in 2005. Decisions were made about whether to extend excavations deeper or laterally based on early data. Some of these excavations, like IR-02, were very large and progressed from one area (grid cell) to another. As that happened, samples were collected. If results were below the release criteria, the excavations moved on. In the case of IR-02, the focus late in the project was on one small area where the contractor had to excavate to greater depth. So, limiting the "data set" to 2006 and later means that all of the early samples that were used to decide if additional excavation was needed in all of the grid cells that were completed prior to 2006 would not be included. While the excavations were completed in late 2006/early 2007, that would only mean that the final confirmation samples were done in the 2006-2007 timeframe. Please include the pre-2006 work done in these three areas in the review by the independent third party contractor.

If you encounter other work done before 2006 that was also used to make decisions such as the above, then please also include that.

In addition, I talked with my manager John Chesnutt yesterday, and he brought up another way in which pre-2006 data may be relevant. If Tetra Tech ECI did sampling and analysis in a location where other contractors had also conducted sampling and analysis, it would be useful to know the results found independently. One recommendation EPA gave earlier was to re-sample in locations of highest risk levels found as an indication of where risks might be highest from potential falsification of data. The findings from independent consultants, which could include pre-2006 data, could be a useful indication of that. Please also use pre-2006 data from either Tetra Tech ECI or other consultants in this manner as well.

So far, these are the areas that EPA's team would be most concerned about pre-2006 data. As we research the matter more, we will add any new concerns that may arise.

Lily